LISTING OF THE CLAIMS

1. (previously presented) A fibrous protein-immobilization system composition comprising:

a nanofiber comprising fiber-forming material;

a protein attached to the fiber-forming material,

wherein the nanofiber includes at least one functional group suitable to permit the attachment of the protein, wherein the at least one function group is contained within a portion of the fiber-forming material, and wherein the fiber-forming materials are linear polymers selected from the group consisting of homopolymers and copolymers of α-olefins, α,β-ethylenicallly unsaturated carboxylic acids, vinyl aromatics, ethyl ethers, and combinations thereof.

2. (cancelled)

3. (cancelled)

4. (currently amended) A fibrous protein-immobilization system composition comprising:

a nanofiber comprising fiber-forming material;

a protein attached to the fiber-forming material,

wherein the nanofiber includes at least one functional group suitable to permit the attachment of the protein, wherein the at least one function group is contained within a portion of the fiber-forming material, wherein the protein is attached directly to the fiber-forming material, and wherein the fiber-forming material is selected from the group consisting of nylons, polyesters, polyurethanes, silanes, ~~synthetic polymers,~~ or copolymers thereof.

5. (previously presented) The fibrous protein-immobilization system composition, as set forth in claim 4, wherein the protein includes at least one functional group that can react with the at least one functional group on the nanofiber comprising fiber-forming material.

6. (previously presented) The fibrous protein-immobilization system composition, as set forth in claim 1, wherein the protein is attached indirectly to the fiber-forming material by an inert coupling agent.

7. (previously presented) The fibrous protein-immobilization system composition, as set forth in claim 6, wherein the protein includes at least one functional group that can react with a corresponding functional group on the inert coupling agent.

8. (previously presented) The fibrous protein-immobilization system composition, as set forth in claim 1, wherein the protein is a natural or synthetic protein.

9. (previously presented) The fibrous protein-immobilization system composition, as set forth in claim 8, wherein the protein is selected from the group consisting of enzymes, hormones, toxins, antibodies, antigens, lectins, structural proteins, signal proteins, transport proteins, receptors, and blood factors.

10. (currently amended) A fibrous protein-immobilization system composition comprising:

a nanofiber comprising fiber-forming material;

a protein attached to the fiber-forming material,

wherein the nanofiber includes at least one functional group suitable to permit the attachment of the protein, wherein the at least one function group is contained within a portion of the fiber-forming material, wherein the protein is an enzyme selected from the group consisting of chymotrypsin, cytochrome C, trypsin, subtilisin, horseradish peroxidase,

soybean peroxidase, and glucose oxidase, and wherein the fiber-forming material is selected from the group consisting of nylons, polyesters, polyurethanes, silanes, ~~synthetic polymers,~~ or copolymers thereof.

11. (previously presented) A method for synthesizing a fibrous protein-immobilization system comprising the steps of:

synthesizing a nanofiber comprising a fiber-forming material, wherein the nanofiber includes at least one functional group suitable to permit the attachment of a protein and wherein the at least one function group is contained within a portion of the fiber-forming material; and

attaching the protein to the fiber-forming material, and

wherein the fiber-forming materials are linear polymers selected from the group consisting of homopolymers and copolymers of α-olefins, α,β-ethylenicallly unsaturated carboxylic acids, vinyl aromatics, ethyl ethers, and combinations thereof.

12. (previously presented) A method for synthesizing a fibrous protein-immobilization system comprising the steps of:

synthesizing a nanofiber comprising a fiber-forming material, wherein the nanofiber includes at least one functional group suitable to permit the attachment of a protein and wherein the at least one function group is contained within a portion of the fiber-forming material; and

attaching the protein to the fiber-forming material,

wherein the protein is attached to the fiber-forming material before the fiber-forming material is synthesized into a nanofiber.

13. (previously presented) The method of claim 11, wherein the protein is attached to the fiber-forming material after the fiber-forming material is synthesized into a nanofiber.

14. (previously presented) A method for synthesizing a fibrous protein-immobilization system comprising the steps of:

synthesizing a nanofiber comprising a fiber-forming material, wherein the nanofiber includes at least one functional group suitable to permit the attachment of a protein and wherein the at least one function group is contained within a portion of the fiber-forming material; and

attaching the protein to the fiber-forming material,

wherein the step of synthesizing includes electrospinning a solution of the fiber-forming material to produce the nanofiber.

15. (previously presented) The method of claim 11, wherein the step of attaching includes attaching the protein to a coupling agent and the coupling agent to the fiber-forming material.

16. (previously presented) A method for synthesizing a fibrous protein-immobilization system comprising the steps of:

synthesizing a nanofiber comprising a fiber-forming material, wherein the nanofiber includes at least one functional group suitable to permit the attachment of a protein and wherein the at least one function group is contained within a portion of the fiber-forming material; and

attaching the protein to the fiber-forming material,

wherein the protein is an enzyme and further comprises the step of attaching a cofactor to the fiber-forming material.

17. (previously presented) The method of claim 16, further comprising the step of presenting the enzyme to the cofactor by incorporating the enzyme into a fluid that contacts the co-factor.

18. (currently amended) A fibrous protein-immobilization system composition comprising:

a nanofiber comprising fiber-forming material;

a protein attached to the fiber-forming material;

wherein the nanofiber includes at least one functional group suitable to permit the attachment of the protein; wherein the at least one function group is contained within a portion of the fiber-forming material, wherein the protein is contained within the fiber-forming material, and wherein the fiber-forming material is selected from the group consisting of nylons, polyesters, polyurethanes, silanes, ~~synthetic polymers,~~ or copolymers thereof.

19. (currently amended) A method for synthesizing a fibrous protein-immobilization system comprising the steps of:

synthesizing a nanofiber comprising a fiber-forming material, wherein the nanofiber includes at least one functional group suitable to permit the attachment of a protein and wherein the at least one function group is contained within a portion of the fiber-forming material; and

attaching the protein to the fiber-forming material,

wherein the protein is contained within the fiber-forming material, and wherein the fiber-forming material is selected from the group consisting of nylons, polyesters, polyurethanes, silanes, ~~synthetic polymers,~~ or copolymers thereof.